

CLAIMS:

1. A content delivery system comprising:

5 a user device and a capture system located remote from said user device and operable to capture and process content data as it is broadcast from a content broadcaster;

wherein the user device includes:

i) a first receiver operable to receive user input;

10 ii) a transmitter operable to transmit, in response to a first user input identifying content to be recorded, a request to said remote capture system to capture the content identified by said first user input;

15 iii) a second receiver operable to receive captured and processed content data from said remote capture system;

iv) a storage device for storing the captured and processed content data received by said second receiver; and

20 v) a playout unit operable, in response to a second user input identifying stored content to be played out, to retrieve the content identified by said second user input from said storage device and operable to playout the retrieved content.

25 2. A system according to claim 1, wherein said capture system is operable to process said captured content data to determine tag data identifying the timing of content segments within the captured content.

3. A system according to claim 2, wherein said capture system is operable to transmit said captured content data together with said tag data to said second receiver of said user device and wherein said storage device is operable to store both the captured content data and the generated tag data.

4. A system according to claim 3, wherein said playout unit is operable to control the playout of said stored content data in dependence upon on the tag data associated with the content data.

5. A system according to claim 4, wherein said playout unit is operable to control the playout of said content data in accordance with said tag data and a user input identifying the rate at which the content data is to be played out.

6. A system according to claim 5, wherein said playout unit is operable to control the rate at which said content data is played out to provide fast forward and/or rewind capabilities.

7. A system according to any preceding claim, wherein said content data represents a video broadcast.

8. A system according to claim 7, wherein said capture system includes a video server operable to capture video data as it is broadcast by said content broadcaster.

9. A system according to claim 7 or 8, further comprising a personal video recorder (PVR) server operable to receive the requests transmitted by said user device and operable to control the capturing of said video data by said video server.

10. A system according to claim 9, wherein said capture system includes a database, wherein said PVR server is operable to store received user requests for content recordal in said database and further comprising a scheduler operable to process the requests stored in said database together with programme guide data identifying the timing at which content is to be broadcast by said content broadcaster, to control the capturing of content by said video server.

11. A system according to claim 10, wherein said scheduler is operable to provide channel data identifying the channels to be recorded together with data identifying the start and end time for the recordings.

12. A system according to any preceding claim, wherein said capture system is operable to generate a contents schedule for each piece of content captured by the capture system, which contents schedule identifies a sequence of content portions of captured content to be played out by the playout unit of said user device.

13. A system according to claim 12, wherein said contents schedule identifies a sequence of programme

segments and adverts to be played out by said playout unit.

5 14. A system according to 12 or 13, wherein said capture system is operable to generate a personalised contents schedule for the user device based on a user profile associated with a user of the user device.

10 15. A system according to claim 14, wherein said capture system is operable to personalise said contents schedule by selecting advert data defining personalised adverts to be played out by said playout unit.

15 16. A system according to claim 14 or 15, wherein said capture system is operable to personalise said contents schedule by varying the number of adverts identified in the contents schedule for playout by said playout unit.

20 17. A system according to any of claims 12 to 16, wherein said capture system is operable to generate a plurality of different contents schedules one for each of a corresponding plurality of different user types, wherein the user associated with the user device is categorised as belonging to one of said user types and  
25 wherein said capture system is operable to transmit to said user device the contents schedule for the type of user associated with the user device.

30 18. A system according to any of claims 12 to 17, wherein said capture system is operable to mark one or

more of said sequence of content portions to restrict  
playout control available to a user of said user device.

5 19. A system according to claim 18, wherein said capture  
system is operable to mark one or more of said content  
portions to inhibit a fast-forward playout of that  
content portion.

10 20. A system according to any preceding claim, wherein  
said capture system is operable to transmit guide data  
identifying different content that will be broadcast by  
said contents broadcaster and wherein said user device  
is operable to output said guide data to said user.

15 21. A system according to any preceding claim, wherein  
said capture system is operable to generate a menu page  
identifying the content that can be recorded by said  
capture system and wherein said user device is operable  
to display said menu page to said user.

20 22. A system according to claim 21, wherein said menu  
page and said user device are arranged so that a user  
associated with the user device can select content to be  
recorded from the displayed menu page.

25 23. A system according to any preceding claim, wherein  
said capture system is operable to capture and buffer all  
content broadcast by said content broadcaster during a  
previous N hours.

30

24. A system according to claim 23, wherein said user device includes a third receiver for receiving live content broadcast from said content broadcaster and wherein said capture system is operable to use the content captured during said previous N hours to provide pause live content functionality to said user device.

25. A system according to any preceding claim, wherein said capture system is operable to maintain a record of all content transmitted to said user device for storage in said storage device.

26. A system according to claim 25, wherein said capture system is operable to download data defining a graphical user interface illustrating different types of content recorded for a user associated with the user device.

27. A system according to claim 26, wherein said graphical user interface identifies content that has been captured by said capture system in response to a request received by said user device and content that has been captured automatically by said capture system based on a user profile for the user associated with the user device.

28. A system according to any preceding claim, wherein said capture system includes a transmitter for transmitting the captured and processed content data to said user device at a data rate which is less than a data rate required for real time playout of the content by

said playout unit.

29. A system according to claim 28, wherein said transmitter of said capture system is operable to transmit multiple content files to said user device simultaneously and wherein said user device is operable to receive said multiple content files simultaneously and to store said multiple content files separately within said storage device.

30. A system according to any preceding claim, wherein said capture system includes a storage device for storing content recorded for a user associated with the user device.

31. A system according to claim 30, wherein said capture system and said user device are arranged so that the storage location of said captured content is transparent to a user associated with the user device.

32. A system according to any preceding claim, further comprising a second storage device provided remote from said user device and operable to store content captured by said capture system for a user associated with the user device.

33. A system according to claim 32, wherein said user device is operable to transmit a recorded content playout request to said capture system and wherein said capture system is operable to redirect the user to the storage

device containing the requested content.

34. A system according to any preceding claim, wherein  
said capture system is operable to make suggestions of  
content to be recorded to said user device and is  
operable to record suggestions selected by a user  
associated with the user device.

35. A system according to claim 34, wherein said capture  
system is operable to make said suggestions based on user  
profile data for the user associated with the user  
device.

36. A system according to claim 34 or 35, wherein said  
capture system is operable to make said suggestions based  
on previous programmes viewed by the user associated with  
the user device.

37. A system according to any preceding claim, wherein  
said capture system is operable to record programmes  
automatically for a user associated with the user device.

38. A system according to claim 37, wherein said capture  
system is operable to record automatically said content  
based on a user profile for the user associated with the  
user device.

39. A system according to any preceding claim, wherein  
multiple users are associated with said user device,  
wherein said capture system includes user profile data



71

for each user associated with the user device, and wherein said user device is operable to transmit current user ID data to said capture system to identify the current user associated with the user device, and wherein the capture system is operable to use said current ID data to select the user profile data for the current user.

40. A system according to claim 39, wherein said capture system maintains a record list for each user associated with the set top box and is operable to use the current user ID to select the record list for the current user of the user device.

41. A system according to claim 40, wherein said capture system is operable to transmit the selected record list for the current user to the user device in response to a request for the record list received from the user device.

42. A system according to claim 40 or 41, wherein said user device is operable to transmit, in response to user input, instructions to said capture system identifying content within a user's record list which is to be included in the record lists for one or more other users of the user device.

43. A system according to any preceding claim, wherein said first receiver of said user device comprises a keyboard interface or a remote control interface for

receiving user input from an associated keyboard or an associated remote control.

5 44. A content delivery system comprising one or more client terminals coupleable to a server terminal via a data communications link, wherein the or each client terminal is operable to transmit a request to said server terminal to record content data as it is broadcast by a content broadcaster and wherein said server terminal is  
10 operable to record the requested content data and to store the recorded content data in the client terminal that requested the recordal for subsequent playout to a user associated with the client terminal.

15 45. A system according to claim 44, wherein said client terminal is operable to transmit said request in response to a user input identifying content to be recorded.

20 46. A system according to claim 44 or 45, wherein said server terminal is operable to transmit to said client terminal data identifying the content recorded in said client terminal and wherein said client terminal is operable to output said data to the user.

25 47. A system according to claim 46, wherein said client terminal is operable to transmit said request to said server terminal in response to a received user selection from the data output to the user.

30 48. A content delivery system comprising one or more

client terminals couplable to a remote server terminal via a data communications link, wherein one or more of said client terminals is operable to store content data for subsequent playout to a user and wherein access to the content stored in the client terminal is controlled by said server terminal.

49. A system according to claim 48, wherein said client terminal includes a user input for receiving requests for the playout of stored content, wherein said client terminal is operable to transmit the request for said content to said server terminal and wherein said server terminal is operable to identify the storage location of the requested content in a storage device of the client terminal.

50. A system according to claim 49, wherein said server terminal is operable to transmit to said client terminal data identifying the content stored in the client terminal for output to a user associated with the client terminal, and wherein said client terminal is operable to transmit said request based on a selection made by the user from said output data.

51. A user device for use in a content delivery system, the user device comprising:

- a first receiver operable to receive user input;
- a transmitter operable to transmit, in response to a first user input identifying content to be recorded, a request to a remote capture system to capture the

content identified by said first user input;

a second receiver operable to receive captured and processed content data from said remote capture system;

a storage device for storing the captured and processed content data received by said second receiver; and

a playout unit operable, in response to a second user input identifying stored content to be played out, to retrieve the content identified by said second user input from said storage device and operable to playout the retrieved content.

52. A user device according to claim 51, wherein said captured and processed content data includes tag data identifying the timing of content segments within the captured content and wherein said storage device is operable to store both the captured content data and the generated tag data.

53. A user device according to claim 52, wherein said playout unit is operable to control the playout of said stored content data in dependence upon on the tag data associated with the content data.

54. A user device according to claim 53, wherein said playout unit is operable to control the playout of said content data in accordance with said tag data and a user input identifying the rate at which the content data is to be played out.

55. A user device according to claim 54, wherein said playout unit is operable to control the rate at which said content data is played out to provide fast forward and/or rewind capabilities.

5

56. A user device according to any of claims 51 to 55, wherein said content data represents a video broadcast.

10

57. A user device according to any of claims 51 to 56, operable to receive guide data identifying different content that will be broadcast by a content broadcaster and operable to output said received guide data to a user.

15

58. A user device according to any of claims 51 to 57, operable to receive a menu page identifying the content that can be recorded by said capture system and operable to display said menu page to a user.

20

59. A user device according to claim 58, wherein said menu page and said user device are arranged so that a user associated with the user device can select content to be recorded from the displayed menu page.

25

60. A user device according to any of claims 51 to 59, further comprising a third receiver operable to receive live content broadcast from a content broadcaster and wherein said remote capture system is operable to use content captured during a previous N hours to provide pause live content functionality to said user device.

30

76

61. A user device according to any of claims 51 to 60, operable to receive data defining a graphical user interface illustrating different types of content recorded for a user associated with the user device.

5

62. A user device according to claim 61, wherein said graphical user interface identifies content that has been captured by said capture system in response to a request received by said user device and content that has been captured automatically by said capture system based on a user profile for the user associated with the user device.

10

63. A user device according to any of claims 51 to 62, operable to receive said captured and processed content data at a data rate which is less than a data rate required for real time playout of the content by said playout unit.

15

64. A user device according to claim 63, operable to receive multiple content files simultaneously and operable to store said multiple content files separately within said storage device.

20

65. A user device according to any of claims 51 to 64, operable to transmit a recorded content playout request to said remote capture system and operable to receive a redirect instruction from said capture system to the storage location of the requested content.

25

30

66. A user device according to any of claims 51 to 65, wherein multiple users are associated with said user device, and wherein said user device is operable to transmit current user ID data to said capture system to  
5 identify the current user associated with the user device to said capture system.

67. A user device according to claim 66, operable to receive a selected record list for the current user,  
10 identifying content recorded for the current user.

68. A user device according to claim 67, operable to transmit, in response to user input, instructions to said capture system identifying content within a user's record  
15 list which is to be included in the record list for one or more other users of the user device.

69. A user device according to any of claims 51 to 68, wherein said first receiver comprises a keyboard  
20 interface or a remote control interface for receiving user input from an associated keyboard or an associated remote control.

70. A capture system for use in a content delivery  
25 system, the capture system comprising:

a receiver operable to receive a user request from a remote user device, identifying content to be captured;

a capture device operable to capture and process content data as it is broadcast from a content  
30 broadcaster in accordance with said user request; and

78

a transmitter operable to transmit captured and processed content data to said remote user device for storage therein;

5 71. A system according to claim 70, operable to process said captured content data to determine tag data identifying the timing of content segments within the captured content.

10 72. A system according to claim 71, operable to transmit said captured content data together with said tag data to said user device for storage in said user device.

15 73. A system according to any preceding claim, wherein said capture device is operable to capture a video broadcast.

20 74. A system according to claim 73, wherein said capture device includes a video server operable to capture video data as it is broadcast by said content broadcaster.

25 75. A system according to claim 73 or 74, comprising a personal video recorder (PVR) server operable to receive the user requests and operable to control the capturing of said video data by said video server.

30 76. A system according to any of claims 51 to 75, wherein said capture device includes a database, wherein said receiver is operable to store received user requests for content recordal in said database and further



comprising a scheduler operable to process the requests stored in said database together with programme guide data identifying the timing at which content is to be broadcast by said content broadcaster, to control the capturing of content by said capture device.

77. A system according to claim 76, wherein said scheduler is operable to provide channel data identifying the channels to be recorded together with data identifying the start and end time for the recordings.

78. A system according to any of claims 70 to 77, operable to generate a contents schedule for each piece of content captured by the capture device, which contents schedule identifies a sequence of content portions of captured content to be played out by the user device.

79. A system according to claim 78, wherein said contents schedule identifies a sequence of programme segments and adverts to be played out by said user device.

80. A system according to 78 or 79, operable to generate a personalised contents schedule for the user device based on a user profile associated with a user of the user device.

81. A system according to claim 80, operable to personalise said contents schedule by selecting advert data defining personalised adverts to be played out by

80

said user device.

5 82. A system according to claim 80 or 81, operable to personalise said contents schedule by varying the number of adverts identified in the contents schedule for playout by said user device.

10 83. A system according to any of claims 78 to 82, operable to generate a plurality of different contents schedules one for each of a corresponding plurality of different user types, wherein the user associated with the user device is categorised as belonging to one of said user types and wherein said capture system is operable to transmit to said user device the contents  
15 schedule for the type of user associated with the user device.

20 84. A system according to any of claims 78 to 83, operable to mark one or more of said sequence of content portions to restrict playout control available to a user of said user device.

25 85. A system according to claim 84, operable to mark one or more of said content portions to inhibit a fast-forward playout of that content portion.

30 86. A system according to any of claims 70 to 85, operable to transmit guide data identifying different content that will be broadcast by said contents broadcaster, to said user device.

81

87. A system according to any of claims 70 to 86, operable to generate a menu page identifying the content that can be recorded by said capture system and operable to transmit said menu page to said user device.

5

88. A system according to any of claims 70 to 87, wherein said capture system is operable to capture and buffer all content broadcast by said content broadcaster during a previous N hours for providing pause live content functionality to said user device.

10

89. A system according to any of claims 70 to 88, operable to maintain a record of all content transmitted to said user device for storage therein.

15

90. A system according to claim 89, operable to generate and download data to said user device, defining a graphical user interface illustrating different types of content recorded for a user associated with the user device.

20

91. A system according to claim 90, wherein said graphical user interface identifies content that has been captured by said capture system in response to a user request received from said user device and content that has been captured automatically by said capture system based on a user profile for the user associated with the user device.

25

92. A system according to any of claims 70 to 91,

30

wherein said transmitter is operable to transmit the captured and processed content data to said user device at a data rate which is less than a data rate required for real time playout of the content by said user device.

5

93. A system according to claim 92, wherein said transmitter is operable to transmit multiple content files to said user device simultaneously for storage separately within said user device.

10

94. A system according to any of claims 70 to 93, further comprising a storage device operable to store content recorded for a user associated with the user device.

15

95. A system according to claim 94, wherein said capture system is arranged so that the storage location of said captured content is transparent to a user associated with the user device.

20

96. A system according to claim 94 or 95, operable to receive a recorded content playout request from said user device and operable to redirect the user device to the storage device containing the requested content.

25

97. A system according to any of claims 70 to 96, operable to make suggestions of content to be recorded to said user device and operable to record suggestions selected by a user associated with the user device.

30

98. A system according to claim 97, operable to make said suggestions based on user profile data for the user associated with the user device.

5 99. A system according to claim 97 or 98, wherein said capture system is operable to make said suggestions based on previous programmes viewed by the user associated with the user device.

10 100. A system according to any of claims 70 to 99, operable to record programmes automatically for a user associated with the user device.

15 101. A system according to claim 100, operable to record automatically said content based on a user profile for the user associated with the user device.

20 102. A system according to any of claims 70 to 101, wherein multiple users are associated with said user device, wherein said capture system includes user profile data for each user associated with the user device, wherein said capture system is operable to receive current user ID data from said user device identifying the current user associated with the user device, and  
25 wherein the capture system is operable to use said current ID data to select the user profile data for the current user.

30 103. A system according to claim 102, operable to maintain a record list for each user associated with the

user device and operable to use the current user ID to select the record list for the current user of the user device.

5       104. A system according to claim 103, operable to transmit the selected record list for the current user to the user device in response to a request for the record list received from the user device.

10       105. A system according to claim 103 or 104, operable to receive data from said user device identifying content within a user's record list which is to be included in the record list for one or more other users of the user device and operable to modify the record list for said  
15       one or more other users in dependence upon the received data.

106. A content delivery method comprising:

20       transmitting from a user device in response to a user input, a request to a remote capture system to capture content identified by the user input;

      receiving the user request at the remote capture system and capturing and processing the identified content when it is broadcast from a content broadcaster;

25       transmitting the captured and processed content data to said user device;

      storing the content data received by said user device in a storage device of the user device; and

30       retrieving, in response to a user input identifying stored content to be played out, the content identified

by said user input from said storage device and playing out the retrieved content to an associated user.

107. A method according to claim 106, comprising  
5 processing said captured content data to determine tag data identifying the timing of content segments within the captured content.

108. A method according to claim 107, comprising  
10 transmitting said captured content data together with said tag data to said user device and storing both the captured content data and the determined tag data in said user device.

109. A method according to claim 108, wherein said  
15 playout step controls the playout of said stored content data in dependence upon on the tag data associated with the content data.

110. A method according to claim 109, wherein said  
20 playout step controls the playout of said content data in accordance with said tag data and a user input identifying the rate at which the content data is to be played out.

111. A method according to claim 110, wherein said  
25 playout step controls the rate at which said content data is played out to provide fast forward and/or rewind capabilities.

112. A method according to any of claims 106 to 111, wherein said capturing step captures content data representing a video broadcast.

5 113. A method according to claim 112, comprising storing received user requests for content recordal in a database and further comprising processing the requests stored in said database together with programme guide data identifying the timing at which content is to be  
10 broadcast by said content broadcaster, to control the capturing of said content.

114. A method according to any of claims 106 to 113, further comprising generating a contents schedule for  
15 each piece of captured content, which contents schedule identifies a sequence of content portions of captured content to be played out in the playout step.

115. A method according to claim 114, wherein said  
20 contents schedule identifies a sequence of programme segments and adverts to be played out in said playout step.

116. A method according to claim 114 or 115, comprising  
25 generating a personalised contents schedule for the user device based on a user profile associated with a user of the user device.

117. A method according to claim 116, comprising  
30 personalising said contents schedule by selecting advert



data defining personalised adverts to be played out in said playout step.

118. A method according to claim 116 or 117, comprising personalising said contents schedule by varying the number of adverts identified in the contents schedule for playout in said playout step.

119. A method according to any of claims 114 to 118, comprising generating a plurality of different contents schedules one for each of a corresponding plurality of different user types, categorising the user associated with the user device as belonging to one of said user types and transmitting to said user device the contents schedule for the type of user associated with the user device.

120. A method according to any of claims 114 to 119, comprising marking one or more of said sequence of content portions to restrict playout control available to a user of said user device.

121. A method according to claim 120, comprising marking one or more of said content portions to inhibit a fast-forward playout of that content portion.

122. A method according to any of claims 106 to 121, comprising transmitting guide data identifying different content that will be broadcast by said contents broadcaster and outputting said guide data to said user.

123. A method according to any of claims 106 to 122, comprising generating a menu page identifying the content that can be recorded by said capture system and displaying said menu page to said user.

5

124. A method according to claim 123, comprising receiving a user selection identifying content to be recorded from the displayed menu page.

10

125. A method according to any of claims 106 to 124, comprising capturing and buffering all content broadcast by said content broadcaster during a previous N hours.

15

126. A method according to claim 125, comprising receiving, at said user device live content broadcast from said content broadcaster and further comprising using said buffered data to provide pause live content functionality to said user device.

20

127. A method according to any of claims 106 to 126, comprising maintaining a record of all content transmitted to said user device for storage therein.

25

128. A method according to claim 127, comprising downloading data to said user device, defining a graphical user interface illustrating different types of content recorded for a user associated with the user device.

30

129. A method according to claim 128, comprising

identifying, in said graphical user interface, content that has been captured by said capture system in response to a request received by said user device and content that has been captured automatically by said capture system based on a user profile for the user associated with the user device.

130. A method according to any of claims 106 to 129, wherein said transmitting step transmits the captured and processed content data to said user device at a data rate which is less than a data rate required for real time playout of the content in said playout step.

131. A method according to claim 130, wherein said transmitting step transmits multiple content files to said user device simultaneously, wherein said receiving step receives said multiple content files simultaneously and wherein said storing step stores said multiple content files separately within said storage device.

132. A method according to any of claims 106 to 131, comprising storing content recorded for a user associated with the user device in the capture system.

133. A method according to claim 132, comprising the steps of transmitting a recorded content playout request to said capture system and redirecting the user device to the storage device containing the requested content.

134. A method according to any of claims 106 to 133,

comprising making suggestions of content to be recorded to said user device and recording suggestions selected by a user associated with the user device.

5 135. A method according to claim 134, comprising making said suggestions based on user profile data for the user associated with the user device.

10 136. A method according to claim 134 or 135, comprising making said suggestions based on previous programmes viewed by the user associated with the user device.

15 137. A method according to any of claims 106 to 136, comprising recording programmes automatically for a user associated with the user device.

20 138. A method according to claim 137, comprising the step of recording automatically said content based on a user profile for the user associated with the user device.

25 139. A method according to any of claims 106 to 138, comprising the steps of transmitting current user ID data to said capture system to identify a current user associated with the user device, and using said current ID data to select the user profile data for the current user.

30 140. A method according to claim 139, comprising maintaining a record list for each user associated with the user device and using the current user ID to select

the record list for the current user of the user device.

141. A method according to claim 140, comprising transmitting the selected record list for the current  
5 user to the user device in response to receiving a request for the record list from the user device.

142. A method according to claim 140 or 141, comprising transmitting, in response to user input, instructions to  
10 said capture system identifying content within a user's record list which is to be included in the record list for one or more other users of the user device.

143. A method according to any of claims 106 to 142,  
15 wherein said receiving step receives said user input from a keyboard or a remote control.

144. A computer readable medium storing computer executable instructions for causing a programmable  
20 computer device to become configured as the user device of any of claims 51 to 69.

145. Computer executable instructions for causing a programmable computer device to become configured as a  
25 user device according to any of claims 51 to 69.

146. A computer readable medium storing computer executable instructions for causing a programmable  
30 computer device to become configured as the capture system according to any of claims 70 to 105.

147. Computer executable instructions for causing a programmable computer device to become configured as the capture system of any of claims 70 to 105.